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Demystifying the Influential IS Legends of Positivism: Response to Lee's Commentary

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Abstract

We respond to Lee's (forthcoming) commentary on our article "Demystifying the Influential IS Legends of Positivism" (Siponen & Tsohou [S&T], 2018). Lee offers four arguments against our analyses and conclusions in S&T (2018). First, because logical positivism (LP) has been discredited, he contends it cannot be used as a normative standard in IS. We clarify that our conclusions in S&T (2018) point to (1) the lack of justification for certain IS beliefs, and (2) a misunderstanding rather than legitimacy of LP as a philosophy of science. Second, Lee argues that IS researchers characterizing positivism never said they were following the tenets of LP. We provide evidence to show some influential papers on positivism in IS research indicated they were indeed following LP. Third, Lee offers an alternative explanation for the emergence and nature of IS positivism. His explanation has merit, and it can be accommodated in S&T's (2018) account of positivism in IS. Unfortunately, his explanation does not account for certain problems in the IS discipline's use of positivism. In S&T (2018), we provide a plausible explanation for these problems. Finally, we discuss the implications of S&T's (2018) findings for the need to better understand the philosophical assumptions underlying "IS positivism." We also counter Lee's arguments that our conclusions in S&T (2018) should not make a difference to the future of IS research.

1. Introduction

Lee (forthcoming) offers not only a critique of our paper (Siponen & Tsohou [S&T], 2018) on logical positivism (LP) in information systems (IS) but also an alternative explanation for positivism in IS. He organizes his critique as four arguments: (1) that LP as a school of thought in the philosophy of science is not legitimate; (2) that IS researchers characterizing positivism never said that they were following LP but instead characterized positivism in their own ways; (3) that IS researchers characterizing positivism formed "a conception of positivism based on a reading of what was going on in IS research, rather than a reading or misreading of logical positivism in the philosophy of science"; and (4) that S&T's (2018) conclusions are invalid given that the premise "that what certain IS researchers have characterized as positivist is unwarranted" is invalid.

In this paper, we respond to each of Lee's arguments. We (a) provide evidence against the argument "that IS researchers characterizing positivism do not say that they were following LP" (Lee, forthcoming), (b) clarify our meaning of the term "the demise of positivism," and (c) discuss the implications of S&T's (2018) conclusions for IS research.

2. Arguments regarding logical positivism disrepute and demise

Lee's first argument is that LP cannot be used as a yardstick for IS positivism because LP has been discredited:

> S&T conclude that what certain IS researchers have characterized as positivist is unwarranted because these researchers' characterization of positivism does not hew to or apply the tenets of logical positivism as a school of thought in the philosophy of science. The discrediting of logical positivism, however, renders

such a conclusion invalid. How may one properly conclude that what certain IS

researchers have characterized as positivist is unwarranted when the yardstick

for measuring what is warranted – logical positivism – has itself been discredited?

(Lee, forthcoming)

First, contrary to what Lee (forthcoming) claims[1], we did not argue that LP tenets, as originally presented, should be used as a yardstick for IS research. For example, we noted: "The extent to which LP is useful for IS without careful and justified modifications is questionable" (S&T, 2018, p. 611). We also wrote in S&T (2018, p. 611) that *if* one wants to use LP as a yardstick, then several theses associated with LP in IS are not supported by LP philosophers[2].

Second, our conclusions focused on the lack of justification for certain IS beliefs rather than the legitimacy of LP as a philosophy of science. We showed that often IS researchers have justified certain research settings (e.g., surveys, statistical analyses, and static variables) only by stating that they fall under the premise of positivism (S&T 2018, Table 3, p. 608). Therefore, we concluded that "IS authors list their positivistic assumptions without an attempt to justify them" (2018, p. 612). Often, IS authors do not explain:

> why these assumptions are positivistic and why they are justified or important in
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> science/IS, other than that they are assumed to be positivistic. Following
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> something without understanding why it is important, and what the strengths
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> and weaknesses of such a view are, can constitute dogmatism, and IS research
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> should be cognizant of this hazard. (S&T, 2018, p. 612)

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[1] "In their argument, they return to logical positivism as the yardstick against which the characterizations of positivism by IS researchers should be judged" (Lee, forthcoming).

[2] According to Lee (forthcoming), "S&T acknowledge, but underplay, the demise of logical positivism." This is not what we say in the paper. We noted (S&T 2018, pp. 602–603) that some philosophers (e.g., Popper) were declared destroyers of logical positivism. We stressed that the famous LP tenets such as verification were abandoned by LP adherents, mainly due to their self-critique (see S&T 2018, pp. 602–603; section 2.3).

To clarify, contrary to Lee's (forthcoming) claim, we did not claim that IS research must follow LP (S&T, 2018). Instead, our key point was that IS authors have often misunderstood LP when making claims about whether they have followed a positivist approach. Highlighting such misunderstandings does not commit us to be logical positivists[3]. In principle, one can misconstrue any philosophical thesis, whether it is "discredited" or not.

3. Arguments that IS researchers said they were never following LP

Lee's second argument is that "IS researchers who have characterized positivism in their own ways never said that they were following logical positivism" (Lee, forthcoming).

Our analysis of IS papers on positivism revealed that most cited only a few influential sources, when they justified their use or non-use of positivism (S&T 2018, p. 607). These include Orlikowski and Baroudi (1991), Lee (1991), Walsham (1995), and Klein and Myers (1999). We examine, therefore, whether the authors of these four influential papers use LP to characterize their concept of positivism. Below, we provide evidence that contradicts Lee's (forthcoming) claim that the authors of these four papers "never said that they were following logical positivism."

(a)   Orlikowski and Baroudi (1991)

Orlikowski and Baroudi (1991, pp. 8–9) contend:

> a positivist research perspective is dominant in information systems research—a status which reflects much of Western science. With roots in *logical positivism*, this perspective reflects the precepts informing the study of natural phenomena.

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[3] For example, emphasizing misinterpretations of Marxism does not commit one to be a Marxist.

Thus, they specifically reference LP as the source of the "positivist research perspective" that is "dominant in information systems research."

Orlikowski and Baroudi (1991, p. 9) also state:

> It is assumed, explicitly or implicitly [by positivists], that there is a one-to-one correspondence between the constructs of a researcher's model and the events, objects, or features of interest in the world.

Orlikowski and Baroudi's characteristic of "one-to-one correspondence between the constructs of a researcher's model and the events, objects, or features of interest in the world" mirrors LP's correspondence theory of truth. This tenet represents "the logical and historical starting point of the Viennese Circle's researchers" (Hempel, 1935, pp. 49–50).

Orlikowski and Baroudi (1991, p. 9) further state:

> "Nomothetic statements, i.e., law-like generalizations independent of time or context, are possible, implying that scientific concepts are precise, having fixed and invariant meanings."

In the philosophy of science, the standard meaning of *nomothetic statements* that Orlikowski and Baroudi (1991) assigned to positivism is the laws of nature (Mautner, 1996, p. 295). In S&T (2018, p. 610), we argued one could "suggest that logical positivists advocated laws." Nonetheless, the nomological (laws) view of research is not specific to LP, because in the philosophy of science until the 1970s scientific theories were often considered to be nomological (Siponen & Klaavuniemi, 2020a; Cartwright, 1980; Teller, 2004).

Lee (forthcoming) suggests that some IS positivism papers, including Orlikowski and Baroudi (1991), do not discuss the "verifiable criterion of meaning." We agree that Orlikowski and Baroudi (1991) did not use this precise term. Nonetheless, they note, "With respect to knowledge, the epistemological belief of the positivist perspective is concerned with the empirical testability of theories, whether this requires theories to be 'verified' or 'falsified'" (Orlikowski & Baroudi, 1991, p. 10). They referred to Chua (1986), who, in turn, referred to the "positivist's belief that there exists a theory-independent set of observation statements that could be used to confirm or verify the truth of the theory" (p. 607). This is quite close to a "verifiable criterion of meaning."

In short, contrary to Lee's (forthcoming) claim that "IS researchers who have characterized positivism in their own ways never said that they were following logical positivism," Orlikowski and Baroudi (1991) clearly rooted their concept of positivism in LP. In turn, many IS authors base their view on positivism on Orlikowski and Baroudi (1991) and thus LP. For example, Lee and Hubona (2009, p. 238) reported their use of positivism is "consistent with" Orlikowski and Baroudi (1991).

(b)   Lee (1991)

Lee (1991, p. 343) clearly points out the origins of the positivistic approach are within a school of thought within the philosophy of science known as "logical positivism" or "logical empiricism. He argued that "a major tenet of logical positivism" is the unity of science thesis, which "maintains that the methods of natural science constitute the only legitimate methods for use in social science" (p. 343). He then explains: "This approach [based on the tenet of LP "thesis of unity of science"] has been explicitly recognized, and advocated, as the 'natural-science model' of social-science research" (Lee, 1991, p. 343).

(c)   Klein and Myers (1999)

Klein and Myers (1999, p. 68) separated interpretive research from positivism. Their sources of positivism included Orlikowski and Baroudi (1991) and Lee (1991). They did not mention that positivism is based on LP. Nonetheless, their view of positivism is committed to the account of positivism provided by Orlikowski and Baroudi (1991) and Lee (1991). These two influential papers tie positivism explicitly to LP.

(d)   Walsham (1995)

Walsham's (1995, p. 383) "criteria" for positivism came from Orlikowski and Baroudi (1991)[4]. His account of positivism assumed objective data, which S&T (2018, pp. 609–610) connected to LP. Thus, Walsham's notion of positivism is also rooted in LP.

To clarify the main point of Section 3, according to Lee (forthcoming), IS scholars characterized "positivism in their own ways" and they "never said that they were following logical positivism." We contest Lee's claim by showing how four influential IS papers on positivism are influenced by LP.

4. The shaping of positivism in IS research

Lee (forthcoming) argues that IS researchers did not aim to apply "any existing philosophy"[5]. Instead, he maintains, "they shaped a conception of positivism based on a reading of what was going on in IS research, rather than a reading or misreading of logical positivism in the philosophy of science."

What then is positivism in IS research according to Lee (forthcoming)? He argues it is characterized "as involving stable independent and dependent variables, survey research, statistics, generalizability, and so forth." Furthermore, he maintains that it "was in this context that much of what IS researchers considered to be positivist was

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[4] "The criteria used by Orlikowski and Baroudi (1991 p. 383) to distinguish between positivist and interpretive articles form a good starting point for the discussion here" (Walsham, 1995, p. 383).
[5] "IS researchers have not had as their main purpose the endeavor to apply any existing philosophy (such as logical positivism)" (Lee, forthcoming).

largely shaped — and it was apparently shaped more so by what IS researchers observed to be going on in IS research than, if at all, in the philosophy of science."

We agree with Lee that many IS scholars, especially those doing qualitative research, reported pressure to meet certain standards associated with natural sciences (see Siponen & Klaavuniemi, 2020b). Thus, we accept his argument that many of these researchers might have used the term "positivism" as a proxy for these standards (see Evaristo & Karahanna, 1997, p. 39; Lee, 1991, p. 343)[6]. In this regard, our account (S&T, 2018) is compatible with the observation that many qualitative or interpretive authors reported pressure to meet standards dubbed positivistic. Nonetheless, Lee's explanation for positivism in IS does not answer five critical questions.

First, Lee's account cannot explain why some IS scholars, such as Lee (1991), refer to LP and sometimes tenets they associate with LP (see Section 3). Second, the claim by Lee that IS positivism primarily captured IS rather than any existing philosophy of science cannot explain why many IS scholars refer to philosophical tenets when describing positivism (e.g., Lee, 1991). Third, if IS researchers prefer to distinguish their idea of positivism from LP, why would they choose the term *positivism* or *logical positivism* to describe "what is going on in IS research"? Why not choose a different term to avoid confusion, and why choose a term that refers to a potentially problematic philosophy? Fourth, why do some IS scholars, such as Lee (1991), discuss Popperian concepts as positivistic, when Popper himself claimed that he was *not* a positivist, but one who "killed" it (S&T, 2018)? Why not explain how they reached their views on positivism to avoid confusion of basic philosophical concepts? Fifth, our concern was that most IS researchers simply mention the term "positivism" to justify their approach and provide no further justification for its use (S&T, 2018, p. 606).

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[6] "…organizational researchers must try harder to make the study of organizations fit the natural science model, since (according to the positivist approach) this is the only way in which organizational research can become truly scientific" (Lee, 1991, p. 343). Or consider, "the methods of natural science constitute the only legitimate methods for use in social science" (Evaristo & Karahanna, 1997, p. 39).

In short, in the early history of IS, we agree that qualitative scholars reported pressure to meet some standards associated with the natural sciences or positivism. Lee's alternative explanation for positivism describes this tension. However, our account of LP in IS (S&T, 2018) is compatible with this tension. Our point was to question the justification of the standard, known as positivism in IS (S&T, 2018). At the same time, Lee's alternative explanation does not explain five anomalies.

5. Major implications of this discourse

Lee (forthcoming) states, "What S&T's framework excluded, however, is the possibility of the existence of any forms of positivism other than logical positivism." We accept that scholars can propose new forms of positivism. In S&T (2018), we did not argue or imply otherwise. Nonetheless, *if* IS scholars propose new versions of positivism, then these scholars should be clear about how these new forms of "positivism" differ from what is commonly known as positivism or LP in the philosophy of science. Otherwise, misunderstandings will arise, such as confusing a new form of positivism with LP in the philosophy of science. These misunderstandings can be harmful by unduly requiring too much from IS research. Proponents of new forms of positivism should also explain how their notion of "positivism" mitigates criticisms made of LP.

Lee (forthcoming) states that "it would be best for S&T's discussion not to make a difference to the future of IS research." We disagree. Lee (forthcoming) is rightly worried about the use of the "discredited" philosophy of science. But how do we know that IS positivism, whether based on "what is going on IS" or not, is not founded on discredited, philosophically problematic tenets? Researchers who claim to be using a positivistic approach to their work need to be clear about the nature of their work so the merits of their approach can be evaluated.

For example, critical realists (CRs) often base their ideas on those of Roy Bhaskar[7]. Accordingly, we can scrutinize the specific tenets, their suitability for IS, and revise them if needed. Our point is not vindicating CRs[8]. Instead, we need to ensure that especially influential or normative ideas in IS research can withstand philosophical scrutiny and that we know their strengths and weaknesses[9]. The weaknesses hopefully are improved in the long run. In this light, future research on IS philosophy must scrutinize all the "positivistic" tenets in IS to ensure that they are not based on problematic (or "discredited") ideas.

6. Conclusions

In S&T (2018), we claimed that many IS scholars either do not properly justify their use of positivism or seem to have misunderstood papers that refer to the philosophy of LP. Contrary to our arguments, Lee (forthcoming) endeavors to show that IS scholars "have characterized positivism in their own ways" and that they "never said that they were following logical positivism." Even without examining IS papers that claim to be positivistic, we accept Lee's claim that IS scholars might have assigned a meaning to positivism that differs from LP. Nonetheless, our examination of some influential papers in the IS literature about the nature of positivism shows that many IS scholars who referenced these papers either explicitly or implicitly characterized positivism with reference to LP. In addition, there is a risk that philosophical doctrines, such as positivism, are used sometimes in IS without enough understanding of their basic principles.

Although Lee's explanation of how positivism arose in IS is important, it is incomplete. It does not address several important concerns discussed in S&T (2018). For instance, we point out that many IS researchers who characterize their papers as positivist

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[7] See, e.g., Mingers et al. (2013) on CR.
[8] For example, for a critique of CR, please see Siponen et al. (2020).
[9] For example, if researchers claim that a natural science model, or positivism, must be followed to be truly scientific (see Lee, 1991), then this claim must withstand serious scrutiny.

provide no claims to support their research philosophy other than the label "positivism" (or similar). Lee's response does not address this concern. In addition, assuming that IS positivism was grounded in LP, in S&T (2018) we explained how LP has been and continues to be often misunderstood. If, however, we assume that IS positivism was not grounded in LP, what then is the philosophical justification for "IS positivism"? In both cases, our conclusion in S&T (2018) "that certain influential, taken-for-granted assumptions underlying IS research are unwarranted" still stands. We argue our conclusion provides an opportunity for IS researchers to explore and justify the reasons behind use of the term "positivism" in IS, irrespective of whether its use reflects the tenets of LP.

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